# Improved storage technologies assures Karatu farmers a competitive market and food security

"Half of my maize grains were damaged by pests while in storage. Some of the grains were cracked, others had insect holes. It was a very devastating situation,” says Hazinal Christian, a farmer from Karatu district, Northern Tanzania.

Hazinal is a mother of three children and also takes care of one of her nephews. She and her husband live in Buger village in the highland zone of Karatu. Communities around this area rely on agriculture for their livelihood. At least 102,573 ha of land in Karatu district is under crop cultivation.

Like many other farmers in her village, Hazinal has been growing maize and bean farming for ages. However, she hardly benefited from her hard work partly due to attack by pests of her grains while in storage.

"In 2017, I hadeighty bags of maize grains as a startup for business. I stored the maize in my store. After a few months, I discovered at least half of the grains were damaged by insect pests. I sorted out at all the good ones and sold at 50,000 TZS (25$) for each sack. Those that were not so bad, I sold to my fellow farmers, who agreed to purchase and pay in installments. I threw away those that were badly damaged. It was a significant loss for me," she said.

Postharvest loss of maize is estimated at 15-25% in East and Southern Africa. Factors such as farmer's poor knowledge and skills on postharvest are some of the contributing factors for the food loss.

The Africa RISING project which has been working with government extensions workers to ensure farmers have access to safe food and feed with improved nutritional quality and also improve income has been addressing postharvest losses. As one of the threats to its objectives.

In phase one, 2013-2016, The project successfully introduced and tested post-harvest technologies with farmers in project areas in phase and conducted practical hands-on training to smallholder farmers. Post-harvest tehcnologies of PICs bags and Hermetic bags were packaged and delivered through the community and development partners. This could be able with the with an iterative review, refining, and follow-up.

The second phase of the project focused on scaling out the proven technologies working with development partners. One such partner is Ile de Paix ( IDP) (a Belgian NGO), Africa RISING Project introduced validated postharvest technologies to IDP's action villages in Karatu district. The scaling was through the mother-baby demonstration approach whereby farmers trained their peers in a cascading model with Africa RISING team providing technical backstopping.

Hazinal is among the 192 farmers trained on improved postharvest management practices in Karatu. Her fellow farmers appointed her as the lead farmer for Buger village. She received one SILO structure which was installed in her compound and four Hermetic bags from IDP. Thus, farmers from Buger village and neighboring towns could easily visit and learn from Hazinal about these technologies.

"At first, farmers were invited to participate in filling the SILO with the five sacks of maize grains. Then, after some months, they visited the store and assessed the grain quality. It was amazing. The grains were of good quality, there was no damage by pests and there was no change of color at all!. Likewise, for PICs bags, the results were impressive. There was not any pest attack, and the quality of the maize grains remained the same," she added.

Hazinal says before the project initiatives in Karatu, she had no knowledge of the SILO technology. She knew about PICS bags but had never used them to store her harvest.

"I am thankful for the project. I now understand how important these technologies are. I used to store maize in a poor environment, and sometimes rodents could attack. Besides, the area that I used to store the harvest was a bit far. So, it was easy for thieves to break in and steal my crops,” she says.

"On top of postharvest management training, we also learned about the effect and how to control aflatoxin and how to process local seeds," she added

Today, Hazinal has become a good ambassador of postharvest technologies. She uses the PICs bags and SILO to store her maize grains and supports her fellow farmers from Buger and nearby villages, Ghahabia and Aybea, with information on where to purchase the postharvest technologies ( PIC bags and SILO).

"Most of the farmers are now aware of these storage technologies. Therefore, there has been increasing demand for PICS bags. For 2019, at least 300 bags were ordered from 11 farmers from Buger, Ghababia, and Aybea villages".

In 2018 Hazinal sold six bags of maize to her fellow farmers at the cost of 60,000 TZS ( 30$) and earned 360,000 TZS ( 160$). In 2019 she sold the same quantity to one individual farmer at 60,000 TZS and earned 360,000 TZS.

"Maize stored in improved PICS BAGS and SILO are non-toxic, these technologies assures me of safe food for my family and also, a secure market as people trust my maize grains since they are free from toxic," commented Hazinal.

Hazinal has managed to buy one dairy cow and constructed a modern toilet from the profit from the maize business. As a result, she also can cover the daily house consumptions and school expenses of her children.

Africa RISING project continues collaborating with development partners to ensure validate postharvest technologies benefit as many farming communities like Hazinal across the regions.



Hazinal's modern toilet that she built from the profits obtained from the maize business. Photo

Credit: E.Massam/IITA



Hazinal with her son and the livestock she bought from her maize business. Photo credit: E.Massam/IITA.



Hazinal with the SILO that she stores her maize. Photo credit: E.Massam/IITA